

# Cumulative Index 1988

## Volume 9

<b>March</b>	<b>MECHANICAL VENTILATION, pages 1-173</b>
<b>June</b>	<b>RESPIRATORY MUSCLES: FUNCTION IN HEALTH AND DISEASE, pages 175-361</b>
<b>September</b>	<b>PULMONARY EFFECTS OF AIDS, pages 363-537</b>
<b>December</b>	<b>INFLAMMATORY DISORDERS OF THE AIRWAYS, pages 539-709</b>

Note: Pages numbers of issues and articles are in boldface type.

- Abdomen, mechanical structure of, 175
- Abdominal muscles, actions of, 189
- on rib cage, 189-190
- functional anatomy of, 188-192
- inspiratory action of, 190-192
- role in inspiration, 341
- ABPA. See *Aspergillosis, allergic bronchopulmonary (ABPA)*.
- Acid anhydrides, and occupational asthma, 580-582
- Acquired immunodeficiency syndrome (AIDS). See also *Human retroviruses*.
- and CMV infection, 443-448
- and tuberculosis, 426-435. See also *Tuberculosis, and AIDS*.
- BAL cells in, 388-389
- BAL proteins in, 389-390
- HIV-1 as cause of, 364-365
- in infants and children, 507-517
- in the United States, 377
- infections in patients with, clinical syndromes of, 379-384
- infectious complications of, 377-386
- lymphocytes in, 391
- macrophages and monocytes in, 390-391
- mycobacterial disease in, 425-441
- nosocomial transmission of, 519-532
- patients with, bacterial pneumonias in, 449-453
- fungal infections in, 453-455
- Kaposi's sarcoma in, 459-465
- lymphocytic interstitial pneumonia in, 467-471
- pulmonary diseases in, diagnosis of, 497-505
- radiology of pulmonary diseases in, 481-495
- role of pulmonary function tests in, 473-479
- Pneumocystis carinii* in, 395-423
- polymorphonuclear cells in, 391
- pulmonary disease in, relevance to, 391
- pulmonary effects of, issue on, 363-532
- pulmonary immunology of, 387-393
- Acute respiratory distress, as complication of mechanical ventilation, 39
- Acute respiratory failure, hospital ventilator management of, 163-165
- nutritional management in, 107
- oxygen toxicity in, 148-149
- $\beta$ -Adrenergic function, diminished, and airway hyperactivity, 544-545
- Adult respiratory distress syndrome (ARDS), in mechanically ventilated patients, and nosocomial pneumonia, 130
- mechanical ventilation in, 4-7
- AIDS. See *Acquired immunodeficiency syndrome*.
- Airway hyperactivity, virus-induced, mechanisms of, 542-547
- Airway hyperactivity (hyperreactive airway disease), immunodeficiency and, 564-565
- Airway pressure tracing, use of, in calculating effective compliance and resistance of respiratory system, 83-87
- Airway responsiveness, normal, to infections, 542
- respiratory infections and, 539-549
- Airways, chronic inflammation of, defects that lead to, 669-678
- function of, autonomic control of, 591-592
- inflammatory disorders of, issue on, 539-699
- Airways disease, treatment of, anticholinergic agents in, 591-598
- Airways inflammation, and occupational asthma, 577-590
- assessment of, using bronchoalveolar lavage, 635-642
- preliminary investigation of, associated with chronic bronchitis, 639-640
- role of bronchoscopy and bronchoalveolar lavage in, 636-639
- Allergy, effect of, on ciliary dysmotility and ultrastructural defects, 663
- Aminophylline. See also *Theophylline*.
- for prevention of diaphragm fatigue, early reports, 325-326
- Amoxicillin, for treatment of acute sinusitis, 560
- Amyotrophic lateral sclerosis, function of respiratory muscles in, 270
- Ankylosing spondylitis, function of respiratory muscles in, 270-271
- Anticholinergic agents, clinical efficacy of, 593-596
- for induced bronchostriction, 593-594

## Anticholinergic agents (Continued)

- for stable angina, 594
- for stable COPD, 594-596
- for status asthmaticus and acute exacerbations, 596
- in treatment of airways disease, 591-598
- pharmacology of, 592-593
- side effects of, 596-597
- use in practice, 597
- $\alpha_1$ -Antichymotrypsin, in bronchial secretions, 647
- Antileukoproteinase (ALP), in bronchial secretions, 646
- $\alpha_1$ -Antitrypsin, in bronchial secretions, 644-645
- ARDS. See *Adult respiratory distress syndrome*.
- Arterial blood gas analysis, in diagnosis of pulmonary diseases, 499-500
- in treatment of AIDS patients with pulmonary disease, 476-477
- Arterial pressure, alterations in, effect on respiratory muscle blood flow, 213
- Artificial respiration, effect on hemodynamics, 2
- Aspergillosis, allergic bronchopulmonary (ABPA), 611-615
  - and fungoses, 599-608
  - diagnosis of, criteria for, 600-602
  - differential diagnosis of, 606
  - historical aspects of, 599-600
  - isotype responses and specificities of, 600
  - natural history of, 605-606
  - patient management of, 606-607
  - pulmonary function in, 604-605
  - radiologic findings in, 603-604
  - staging of, 602-603
- Aspergillus* species, in AIDS patients, 455
- Aspirin, intolerance to, in Samter's syndrome, 569-571
- Aspirin sensitivity, bronchial asthma, and nasal polyps, 567-576. See also *Samter's syndrome*.
- Assist/control mode, 39
- Asthma, acute, viruses and, 539-540
  - and a nasobronchial reflex, 559
  - bronchial, nasal polyps, and aspirin sensitivity, 567-576. See also *Samter's syndrome*.
  - chronic, viral respiratory infections and, 541-542
  - effect of, on ciliary dysmotility and ultrastructural defects, 663
  - epidemiology of, 539-541
  - function of respiratory muscles in, 261-262
  - late phase, rhino-virus induced, and airway hyperreactivity, 547
  - occupational, agents causing, 578
  - and airway inflammation, 577-590
  - diagnosis of, 585-586
  - due to low molecular weight compounds, 580-585
  - induced by high molecular weight compounds, 579-580
  - treatment of, 586
  - pathogenesis of, respiratory infections and, 539-549
  - role of bacteria in, 540-541
  - sinusitis and, 557-565
  - stable, anticholinergic agents for, 594
  - viral respiratory infections and, 542-547
- Asynchrony, chest-abdomen, to determine respiratory muscle fatigue, 248
- Atopy, induction of, and airway hyperreactivity, 543
- Auto-PEEP effect, 87-88
- AZT, for treatment of HIV-1 infection, 372
- Aztreonam, for treatment of cystic fibrosis lung disease, 684
- BAL. See *Bronchoalveolar lavage*.
- Barotrauma, as complication in mechanically ventilated patients, 128-129
- B-cell defects, infections taking advantage of, 383
- Bed, rocking, for IMV, 155
- Bennett bellows volume ventilator, 6
- Bennett MA1 ventilator, 7
- Bennett PR1 pressure-cycled ventilator, 4
- Bilateral idiopathic diaphragmatic paralysis (BIDP), respiratory muscle rest therapy in, 296
- Bird Mark 7 pressure-cycled ventilator, 4
- Blood oxygenation, and carbon dioxide elimination, 73-78
- Body Suit(s), for IMV, 157-158
- Bone marrow transplantation, and BrOb, 553-554
- BOOP. See *Bronchitis obliterans organizing pneumonia (BOOP)*.
- Breathing, loaded, 240-242
  - sources of sensory information during, 237-238
- Breathing effort, monitoring of, during mechanical ventilation, 90-93
- Breathing pattern, monitoring of, during mechanical ventilation, 93-95
- Breathlessness, and respiratory muscle activity, 240-245. See also *Dyspnea*.
  - functional activity and, 245-247
- BrOb. See *Bronchitis obliterans (BrOb)*.
- Bronchiectasis, clinical presentation of, 692
  - diagnosis of, 691-699
  - imaging modalities used in, 692-698
  - history of, 691
  - imaging and treatment planning in, 698
  - in pediatric AIDS, 511-512
  - pathophysiology of, 691-692
- Bronchitis, chronic, airways inflammation associated with,
  - preliminary investigation of, 639-640
  - antiproteinase/proteinase balance and effect of infection and corticosteroids on, 643-656
  - effect of, on ciliary dysmotility and ultrastructural defects, 662-663
  - effect of corticosteroids on proteinase/antiproteinase balance in, 652-654
  - effect of infection on, 651-652
  - proteinase inhibitors in, 644-648
  - proteinase/antiproteinase balance in, 649-651
  - proteinases in, 648-649
- fibrinous (FB), 609-610
- Bronchitis obliterans (BrOb), and airways obstruction associated with GVHD, 551-556
  - bone marrow transplantation and, 553-554
  - causes and associated disorders of, 552-553
  - definition and classification of, 551-552
  - heart-lung related, mechanisms of, 555
  - heart-lung transplantation and, 555
  - historic perspective, 551
  - marrow-related, patient profile for, 554
  - mechanisms of, in marrow recipients, 554-555
- Bronchitis obliterans organizing pneumonia (BOOP),
  - causes and associated disorders of, 552-553
  - definition and classification of, 552
- Bronchoalveolar lavage (BAL), assessment of airways inflammation using, 635-642
  - during mechanical ventilation, 43-44
  - role of, in airways inflammation, 636-639
  - technique of, 387
- Bronchoalveolar lavage (BAL) cells, in AIDS, 388-389
- Bronchoalveolar lavage (BAL) proteins, in AIDS, 389-390
- Bronchoconstriction, induced, anticholinergic agents for, 593-594
- Bronchography, for diagnosis of bronchiectasis, 692-695
- Bronchopneumonia, allergic, 610
- Bacilli, gram-negative (GNB), and nosocomial pneumonia, in mechanically ventilated patients, 130-132

- Bronchoscopes, contaminated, and HIV infection among health care workers, 524-525
- Bronchoscopy, fiberoptic, during mechanical ventilation, 42-43  
for performing difficult intubations, 27  
for diagnosis of pulmonary diseases in AIDS patients, 501  
role of, in airways inflammation, 636-639
- Bronchospasm, enhanced cholinergic-dependent, and airway hyperreactivity, 545-546
- Bronchus, mucoid impaction of, 610-611
- Caffeine, for respiratory muscle therapy, 302-303
- Candida* species, in AIDS patients, 381, 455
- Cannulation, tracheal, surgical methods for, 28-31
- Carbon dioxide retention, and respiratory muscle fatigue, 232-233
- Cardiogenic shock, respiratory muscle rest therapy in, 297-298
- Ceftazidime, for treatment of cystic fibrosis lung disease, 684
- Central nervous system, effects of mechanical ventilation on, 135-136
- Central nervous system infections, in AIDS patients, 382-383
- Chemoprophylaxis, for treatment of PCP in AIDS patients, 416-418
- Chemosterilizers, in infection control, definition of, 526
- Chemotherapy, for treatment of HIV-1 infection, 372
- Chest shell(s), for IMV, 156-157
- Chest wall, anatomy of, 175-177  
diseases of, respiratory muscle rest therapy in, 294-295  
elastic recoil of, 12
- Chronic obstructive pulmonary disease (COPD), diaphragmatic muscle dimensions and type in, 258-259  
effect of undernutrition and respiratory performance in, 332-334  
function of respiratory muscles in, 253-261  
hyperinflation in, 253-257  
respiratory muscle blood flow in, 217-219  
respiratory muscle dysfunction in, clinical evidence of, 259-261  
respiratory muscle rest therapy in, 293-294  
respiratory muscle strength and endurance in, 257-258  
stable, anticholinergic agents for, 594-596  
ventilatory and energy demands in, 253
- Chronic pulmonary interstitial fibrosis, in differential diagnosis of pediatric AIDS, 513
- Ciliary dysmotility, and ultrastructural defects, causes of, 661-663
- Ciprofloxacin, for treatment of cystic fibrosis lung disease, 683
- Cleaning, in infection control, definition of, 526
- CMV ICIV (intravenous hyperimmune CMV immune globulin), for treatment of AIDS-associated CMV pneumonitis, 447
- CMV infection. See *Cytomegalovirus* infection.
- CNS. See *Central nervous system*.
- Coccidioides immitis*, in AIDS patients, 454-455
- Coccidioidomycosis, in AIDS patients, 454-455
- Colonization, bacterial, of tracheobronchial tree, 623-633  
colonization of, 623-625  
pathogenesis of, 625-626  
role of, in nosocomial pneumonia, 626-627  
versus infection, 627-630
- Compliance, 12
- Computed tomography, for diagnosis of bronchiectasis, 695-698
- in evaluation of AIDS-related pulmonary disease, 482-483
- Continuous positive-pressure breathing (CPPB) device, Barach's, 5-6
- Continuous positive-pressure ventilation (CPPV), with PEEP, effect on left ventricular function, 64-65  
effect on right ventricular function, 59-60
- COPD. See *Chronic obstructive pulmonary disease (COPD)*.
- Corticosteroids, effect of, on antiproteinase/proteinase balance, 643-656  
effect on proteinase/antiproteinase balance, in bronchial secretions, 651-654  
for treatment of lymphocytic interstitial pneumonia, 470  
for treatment of PCP, in AIDS patients, 415-416
- Cough, positive esophageal pressure recorded during, as measure of expiratory muscle strength, 242-243
- CPPB. See *Continuous positive-pressure breathing*.
- CPPV. See *Continuous positive-pressure ventilation*.
- Cricothyroidectomy, in mechanically ventilated patients, 31, 32
- Cryptosporidia* species, in AIDS patients, 381
- Cryptococcus neoformans*, in AIDS patients, 453-454  
in CNS infections in AIDS patients, 382-383
- Cuirass ventilator, 1  
for IMV, 156-157
- Cystatins, in bronchial secretions, 647-648
- Cystic fibrosis, airway defense in, immune defects in, 673-676  
nonimmune defects in, 673  
as model for defects in host resistance to infection, 672-676  
effect on skeletal muscle function, 334  
in differential diagnosis of pediatric AIDS, 513
- Cystic fibrosis airway mucus, and bacterial adherence, 681-682
- Cystic fibrosis lung disease, medical management of, 682-687  
microbiology and presentation of, 679-680  
nebulized antibiotic treatment for, 685  
pathology of, 680-681  
*Pseudomonas aeruginosa* and, 679-689
- Cytomegalovirus infection, among health care workers, 523-524  
and AIDS, 380-381, 443-445  
as co-pathogen in PCP, 445
- Cytomegalovirus pneumonitis, AIDS-associated, defining, 444-445  
diagnosis of, 445  
therapy for, 445-447
- Dapsone, for treatment of PCP, in AIDS patients, 414
- Decontamination, in infection control, definition of, 526
- 2',3'-deoxyazidothymidine (AZT), for treatment of HIV-1 infection, 372
- Desquamative interstitial pneumonitis, in pediatric AIDS, pathology of, 515
- Diaphragm, action of during inspiration, 179-181  
cellular contractile mechanisms of, 310-311  
electrical activation of, 339-348  
respiratory muscle activity in, 340-341  
respiratory muscle interaction in, 341-342  
role of abdominal muscles in, 341  
functional anatomy of, 177-178  
functioning of, evaluation of, 344  
influence of lung volume on, 181  
motor unit properties of, characterization of, 201-204  
motor unit recruitment of, 206-208

- Diaphragm (*Continued*)  
physiologic background of, 339-340  
structural and functional organization of, 195-210
- Diaphragm pacing, candidates for, 342-344  
current research efforts, 346-347  
future of, 345  
limitations of, 344-345
- Diaphragmatic paralysis, function of respiratory muscles in, 269-270
- Diazepam, to assist intubation, 26
- $\alpha$ -Difluoromethylornithine, for treatment of PCP, in AIDS patients, 415
- Digoxin, effects on diaphragmatic strength, 311
- Disinfection, in infection control, definition of, 526  
methods of, for HIV infection, 527-528
- Drugs, vasoactive, effect on respiratory muscle blood flow, 217
- Duchenne's muscular dystrophy, function of respiratory muscles in, 270  
respiratory muscle rest therapy in, 295-296
- Dyspnea, muscular sensations in, 238  
psychophysics of, 239-240  
pulmonary sensory mechanisms in, 237-238  
respiratory muscles and, 237-245  
sensory mechanisms in, 237
- Economics, of mechanical ventilation, 163-169
- Elastance, 12-13
- Electrolytes, deficiency of, effect on skeletal muscle function, 331-332
- Electromyogram, to determine respiratory muscle fatigue, 248
- Electron microscopy, for diagnosis of immotile cilia syndrome, 663-664
- ELISA test, for detection of HIV infections, 378
- Embolism, pulmonary, as complication in mechanically ventilated patients, 132-133
- Emerson volume-controlled ventilator, 5
- Encephalopathy, subacute, of AIDS, 383
- Endoscopy, fiberoptic, for performing difficult intubations, 27
- Endotracheal tube cuff, management of, 31
- Engstrom respirator, 2-3
- Epithelial injury, and airway hyperreactivity, 546-547
- Epstein-Barr virus, role of, in lymphocytic interstitial pneumonia, 469
- Exercise, effect on respiratory muscle activity, 242
- Exercise intolerance, and respiratory muscle fatigue, 232
- Fansidar, for chemoprophylaxis of PCP in AIDS patients, 417
- Free radical generation, mechanisms of, 142-143  
sources of, 143-144
- Free radical injury, sites of, 144
- Gallium scan, in detection of PCP, 405-406
- Gallium scanning, lung, 483-489  
following therapy for PCP, 488-489  
in AIDS patients, 485-488  
in AIDS patients without PCP, 490-491  
in non-AIDS setting, 484-485  
whole body, 489
- Gallium scans, lung, in diagnosis of pulmonary diseases, 499-500
- Ganciclovir, for treatment of AIDS-associated CMV pneumonitis, 445-446
- Gas exchange, definition of, 11  
mechanics of, during spontaneous breathing, 14-17  
monitoring of, 73-81
- Gastrointestinal complication(s), in mechanically ventilated patients, 133-134
- Genes, viral, function of, 365-368
- Germicides, in infection control, definition of, 526
- Graft-versus-host disease, BrOb and airways obstruction associated with, 551-556
- Granulomatosis, bronchocentric, 615-617  
clinical and radiologic features of, 617-619
- Guillain-Barré syndrome, respiratory muscle rest therapy in, 296-297
- GVHD. See *Graft-versus-host disease*.
- Halothane, for diaphragmatic contractility, 311-312
- Health care workers, nosocomial transmission of HIV infection among, 519-532  
CDC guidelines for prevention of, 528-530
- Heart-lung transplant BrOb, 555
- Hemiplegia, function of respiratory muscles in, 267
- Hemophilus influenzae*, in AIDS patients, 450-451
- Hemorrhagic shock, respiratory muscle blood flow in, 218
- Hepatic function, complications in, in mechanically ventilated patients, 134
- Herpes simplex virus, among health care workers, 524  
in AIDS patients, 381
- HFV. See *High-frequency ventilation*.
- High-frequency ventilation (HFV), 48-50  
current data regarding, 48-50  
definition of, 48
- Histoplasma capsulatum*, in AIDS patients, 454
- HIV-2, and AIDS, 378
- HIV-1 (HTLV-III), as cause of AIDS, 364-365
- HIV infection, and pulmonary diseases in infants and children, 507-517  
catheter-related, 383-384  
exposure to, management of, 522  
nonmedical consequences of, 378-379  
nosocomial transmission of, among health care workers, 519-532  
CDC guidelines for prevention of, 528-530  
control of, 524-530  
pathogenesis of, 379  
prevention of tuberculosis in persons with, 435-436  
recognition and significance of, 378  
taking advantage of B-cell defect, 383
- HIV-1 (HTLV-III), definition of, 363
- HTLV-I, definition of, 363  
discovery of, 364
- HTLV-II, 378  
discovery of, 364
- Human retroviruses, and AIDS, 377-378  
and associated diseases, 363-376  
as cause of AIDS, 364-365  
discovery of, 364  
epidemiology of, 370-372  
genetic organization of, 365  
history of, 363-364  
life cycle of, 368  
pathogenesis of, 368-370  
related animal retroviruses, 373-374  
structure of, 368  
therapy and vaccines for, 372-373

- Hyperinflation, effect on respiratory muscle function, 332-334  
in COPD, 253-257  
Hypoxia, effect on respiratory muscle blood flow, 214-216
- IgE antibody production, and airway hyperactivity, 543  
Imipenem, for treatment of cystic fibrosis lung disease, 684  
Immotile cilia syndrome (primary ciliary dyskinesia), and inflammatory lung disease, 657-668  
animal models in, 660  
axonemal defects in, 659  
ciliary orientation and basal body in, 659-660  
clinical features of, 658-659  
diagnosis of, criteria for, 663  
electron microscopy for, 664  
immune function and inflammatory response in, 660-661  
in differential diagnosis of pediatric AIDS, 513  
mucociliary transport in, 664  
phase contrast microscopy and ciliary beat frequency in diagnosis of, 664-665  
supportive evidence of, 664  
Immune system, effects of malnutrition on, 103  
Immunodeficiency, and hyperreactive airway disease, 564-565  
Immunology, pulmonary, 387-393  
IMV. See *Intermittent mechanical ventilation*.  
Infection, acute, effect of, on ciliary dysmotility and ultrastructural defects, 661-662  
chronic, effect of, on ciliary dysmotility and ultrastructural defects, 662-663  
colonization versus, 627-630  
effect on proteinase/antiproteinase balance, in bronchial secretions, 651-652  
Infection(s), complications of, in AIDS, 377-386  
extrapulmonary *Pneumocystis carinii* pneumonia, 406  
fungal, in AIDS patients, 453-455  
of airways in pediatric AIDS, 508-510  
respiratory. See *Respiratory infection(s)*.  
Inflammation, airways, assessment of, using bronchoalveolar lavage, 635-642  
lower respiratory, in Samter's syndrome, 569  
upper respiratory, in Samter's syndrome, 568-569  
Inflammatory disorders, of airways, issue on, 539-699  
Inflammatory lung disease, immotile cilia syndrome and, 657-668  
Inspiratory resistive loading training, 281-283  
Inspiratory threshold loading training, 283  
Intercostal muscles, action of, on rib cage, 182-184  
Intermittent mandatory ventilation, advent and uses of, 8  
Intermittent mandatory ventilation mode, 39-41  
Intermittent mechanical ventilation (IMV), 153-162  
criteria for, 154-155  
devices for, 155-156  
therapeutic effectiveness of, 160-161  
types of, 156-160  
Intermittent positive-pressure ventilation (IPPV), effect on left ventricular function, 63-64  
Interstitial lung disease, function of respiratory muscles in, 262-263  
Intubation(s). See also specific types, e.g., *Tracheal, Orotracheal*.  
difficult, techniques for management of, 26-28  
drugs to assist, 26  
guided retrograde transcrioid, 27-28  
Inverse ratio ventilation (IRV), 50-52  
clinical data in adults using, 50-52  
definition of, 50  
Iron lung-body tank, for IMV, 156  
IRV. See *Inverse ratio ventilation*.  
Isocyanates, and occupational asthma, 582-584  
Isoproterenol, for respiratory muscle therapy, 309
- Kaposi's sarcoma, pulmonary, in AIDS patients, 459-465  
clinical presentation of, 459-460  
complications of, 462-463  
establishing diagnosis of, 460-462  
roentgenographic presentation, 460  
therapy for, 463
- Left ventricular afterload, 65-66  
Left ventricular function, effects of mechanical ventilation on, 60-67  
contractility in, 66-67  
IPPV in, 63-64  
Left ventricular preload, and compliance, 61-65  
*Legionella* species, in AIDS patients, 451-452  
Lentiviruses, and AIDS, 373  
Lung and chest wall mechanics, monitoring of, 81-90  
auto-PEEP effect in, 87-88  
inflation impedance in, 89-90  
measuring esophageal pressure, 88-89  
static pressure-volume relationships in, 82-83  
Lung biopsy, during mechanical ventilation, 44  
Lung disease, primary, respiratory muscle rest therapy in, 293-294  
Lung volume, correction for, measurement of, 240-241  
Lung(s), elastic recoil of, 11-12  
Lymphocyte(s), in AIDS, 391
- $\alpha_1$ -Macroglobulin, in bronchial secretions, 646  
Macrophage(s), in AIDS, 390-391  
Malnutrition, effect on ventilatory muscle structure and function, 327-331  
in mechanically ventilated patients, adverse effects of, 101-102  
clinical sequelae of, 103-104  
incidence of, 101  
Mechanical ventilation, conventional, 37-46  
potential limitations of, 47-48  
diagnostic procedures during, 42-44  
discontinuation of, 113-126  
criteria predicting outcome of, 114-115  
following short-term ventilatory support, 115-116  
when to consider, 113-114  
economics of, 163-169  
payment sources, 167-168  
effect on tissue oxygen transport, 7-8  
effects of, on right and left ventricular function, 55-71  
historical perspective of, 163  
hospital management of, 163-165  
in chronic care centers, 165-166  
in home care, 9, 166-167  
indications for, 37-38  
initiation of, 37-39  
initial settings of, 37-39  
oxygen concentration in, 39  
problem management in, 39  
issue on, 1-169  
modern evolution of, 1-10  
ARDS era, 4-7  
earlier history, 1-3



- Mechanical ventilation (*Continued*)  
 modern evolution of, transition from pressure-cycled to volume-controlled ventilators, 2-3  
 modes of, 39-42  
 monitoring breathing effort during, 90-93  
 monitoring during, 73-100  
 new forms of, in adults, 47-54  
 physiology of, 17-20  
 prolonged, weaning from, 116-124  
 weaning from, and nutrition, 109  
 Mechanically ventilated patient(s), complications in, 127-139  
 decreasing oxygen injury in, therapeutic strategies in, 149-150  
 nutritional support in, 101-111  
 monitoring of, 108-109  
 speech in, 31-33  
 tracheal intubation in, 23-35. See also *Tracheal intubation*.  
 Mediator(s), release of, changes in, and airway hyperactivity, 543-544  
 Metalloproteinases, tissue inhibitor of, in bronchial secretions, 647  
 Minerals, deficiency of, effect on skeletal muscle function, 331-332  
 Monitoring, during mechanical ventilation, 73-100  
 of breathing effort, 90-93  
 of lung and chest wall mechanics, 81-90  
 of strength and muscle reserve, 95-97  
 of ventilatory drive and breathing pattern, 93-95  
 of nutritional therapy, in mechanically ventilated patients, 108-109  
 Monocyte(s), in AIDS, 390-391  
 Motor units, classification of, 195-197  
 properties of, of diaphragm, characterization of, 201-204  
 recruitment of, factors affecting, 204-206  
 Mouth pressures, measurement of, 240  
 Mucociliary transport, measurement of, 664  
 Muscle contractile activity, effect on respiratory muscle blood flow, 213-214  
 Muscle fiber oxidative capacity, quantification of, 198-201  
 Muscle fibers, classification of, 197-198  
 Muscles. See specific types, e.g., *Abdominal muscles*.  
 Myasthenia gravis, function of respiratory muscles in, 270  
 Mycobacterial disease, and AIDS, 425-441  
 nontuberculous, and AIDS, 436-438  
*Mycobacterium avium-intracellulare*, and AIDS, 436-438  
 clinical features of, 436-437  
 epidemiology of, 436  
 treatment of, 437-438  
 in AIDS patients, 379-380  
*Mycobacterium tuberculosis*, in AIDS patients, 380  
 Nasal polyps, bronchial asthma, and aspirin sensitivity, 567-576. See also *Samter's syndrome*.  
 Nasobronchial reflex, asthma and sinusitis and, 559  
 possibility of, 564  
 Nasotracheal intubation, 24-25  
 vs. orotracheal intubation, 25-26  
 Needle aspiration biopsy, in diagnosis of pulmonary diseases, 502  
 Neuromuscular disease, function of respiratory muscles in, 266-270  
 respiratory muscle rest therapy in, 295-297  
 Neutropenia, due to ganciclovir, 446-447  
 infections associated with, in AIDS patients, 383  
*Nocardia asteroides*, in AIDS patients, 452  
 Nosocomial transmission, of HIV infection, among health care workers, 519-532  
 CDC guidelines for prevention of, 528-530  
 control of, 524-530  
 Nutrition, and respiratory muscle function, 327-338  
 repletion of, and respiratory muscle function, 334-335  
 Nutritional status, in mechanically ventilated patients, assessment of, 104-105  
 Nutritional support, in mechanically ventilated patients, 101-111  
 complications of, 105-107  
 management of, 107-108  
 monitoring of, 108-109  
 Ohio 560 ventilator, 7  
 Open lung biopsy, in diagnosis of pulmonary diseases in AIDS patients, 502  
 Orotracheal intubation, 23-24  
 vs. nasotracheal intubation, 25-26  
 Oxidant tolerance, research models of, 149  
 Oxidation, definition of, 142  
 Oxygen exposure, clinical effects of, in patients, 148  
 pathologic effects of, 146-147  
 physiologic effects of, 147-148  
 Oxygen injury, cellular protective mechanisms from, 144-145  
 clinical, 146  
 decreasing of, in mechanically ventilated patients, therapeutic strategies in, 149-150  
 Oxygen toxicity, 141-152  
 future pharmacologic interventions for, 150  
 in acute respiratory failure, 148-149  
 manifestations of, 142  
 PCP. See *Pneumocystis carinii* pneumonia.  
 PEEP. See *Positive end-expiratory pressure*.  
 Pentamidine, for chemoprophylaxis of PCP in AIDS patients, 418  
 Pentamidine isethionate, for treatment of PCP, in AIDS patients, 411-413  
 Phase contrast microscopy, and ciliary beat frequency, for diagnosis of immotile cilia syndrome, 665  
 Phrenic nerve pacer(s), for IMV, 156  
 Phrenic nerve pacing application, in respiratory muscle interaction, 342  
 Pneumobelt, for IMV, 155-156  
*Pneumocystis carinii*, 395-423  
 among health care workers, 523  
 forms of, 395  
 life cycle of, 396  
 recurrent, in AIDS patients, diagnosis of, 502-503  
 serologic tests for, 501  
 staining characteristics of, 395-396  
*Pneumocystis carinii* pneumonia, chest radiography in, 481-482  
 clinical presentation of, in AIDS patients, 402-406  
 laboratory values, 404-406  
 pulmonary function tests, 405  
 radiographic manifestations, 402-404  
 signs, 402  
 symptoms, 402  
 epidemiology of, 396-400  
 extrapulmonary, 406  
 gallium lung scanning in patients with, 485-488  
 gallium scanning following therapy for, 488-489

- host immune defense in, 402
- in AIDS patients, and concurrent pulmonary infections, 406
- chemoprophylaxis for, 416-418
- course and outcome of, 406-408
- diagnosis of, 408-409, 497-505
- treatment for, 409-416
- in AIDS patients versus non-AIDS patients, 406
- in pediatric AIDS, 508
- pathology of, 514
- mechanism of gallium uptake in, 487-488
- pathology of, 400-402
- role of CMV as co-pathogen in, 445
- Pneumonia(s), bacterial, in AIDS patients, 449-453
- community-acquired, 450-451
- diagnosis of and therapy for, 452-453
- incidence of, 449-450
- lymphocytic interstitial, in AIDS patients, 467-471
- clinical presentation of, 469
- diagnosis of, 469-470
- pathogenesis of, 469
- pathology of, 467-469
- treatment of, 470
- nosocomial, as complication in mechanically ventilated patients, 129-132
- in AIDS patients, 451
- role of colonization in, 626-627
- Polyclonal polymorphic B-cell lymphoproliferative disorder, in pediatric AIDS, 511
- Polymorphonuclear cells, in AIDS, 391
- Poncho wrap(s), for IMV, 157-158
- Positive end-expiratory pressure (PEEP), CPPV with, effect on left ventricular function, 64-65
- effect on right ventricular function, 59-60
- effect of, on cardiac output and systemic oxygen delivery, 7-8
- in mechanically ventilated patients, 41-42
- Prednisone, for treatment of ABPA, 606-607
- Pressure-supported ventilation (PSV), 52-53
- current data regarding, 53
- definition of, 52
- Progressive multifocal leukoencephalopathy, of AIDS, 383
- Proteinase inhibitors, in bronchial secretions, 644-648
- Proteinase/antiproteinase balance, in bronchial secretions, 650-651
- Proteinases, cysteine, in bronchial secretions, 649-650
- in bronchial secretions, 648-649
- serine, in bronchial secretions, 648-649
- Pseudomonas aeruginosa*, and cystic fibrosis lung disease, 679-689
- PSV. See *Pressure-supported ventilation*.
- Pulmonary alveolar proteinosis, in differential diagnosis of pediatric AIDS, 513
- Pulmonary artery impedance, right ventricular afterload as cause of, 57-59
- Pulmonary disease(s), HIV-related, in infants and children, 507-515
- case definition, 507
- differential diagnosis of, 512-513
- pathology of, 513-515
- in AIDS patients, diagnosis of, 497-505
- arterial blood gases and pH measurements in, 499
- bronchoscopic procedures in, 501
- gallium lung scans in, 499-500
- history, physical examination, and routine laboratory studies in, 497-498
- needle aspiration biopsy in, 502
- open lung biopsy in, 502
- pulmonary function testing in, 499
- routine chest film in, 498-499
- sputum examination in, 500-501
- radiology of, 481-495
- chest radiographs, 481-482
- computed tomography, 482-483
- gallium lung scanning, 483-489
- Pulmonary embolism, as complication in mechanically ventilated patients, 132-133
- Pulmonary function tests, for evaluation of pulmonary diseases in AIDS patients, 473-479, 499
- arterial blood gas analysis, 476-477
- diffusing capacity, 475-476
- lung volumes, 473-474
- spirometry, 474-475
- in detection of PCP, 405
- respiratory muscle strength as factor in, 243-244
- Pulmonary host defense, defects that lead to chronic inflammation of airway, 669-678
- immune, 671-672
- cellular aspects of, 672
- humoral aspects of, 671-672
- nonimmune aspects of, 669-670
- Pulmonary host defenses, cellular components of, 388
- soluble components of, 388
- Pulmonary immunology, 387-393
- Pulmonary infection(s), AIDS-related, transmission of, among health care workers, 522-524
- Pulmonary lymphoid hyperplasia/lymphoid interstitial pneumonitis, in pediatric AIDS, 510-511
- pathology of, 514-515
- Pyrimethamine-sulfadiazine, for chemoprophylaxis of PCP in AIDS patients, 417
- Pyrimethamine-sulfadoxine, for chemoprophylaxis of PCP in AIDS patients, 417
- Pyrimethamine-sulfonamides, for chemoprophylaxis of PCP in AIDS patients, 417
- Radiographs, for diagnosis of bronchiectasis, 692
- Radiology, of AIDS-related pulmonary disease, 481-495.
- See also *Pulmonary disease(s)*, in *AIDS patients*, *radiology of*.
- Renal function, complications in, in mechanically ventilated patients, 134-135
- Respiratory failure, acute, function of respiratory muscles in, 263-266
- Respiratory frequency, alterations in, effect on respiratory muscle blood flow, 216
- Respiratory infection(s), epidemiology of, 539-541
- role of, in airway responsiveness and pathogenesis of asthma, 539-549
- viral, and airway hyperreactivity, mechanisms of, 542-547
- and asthma, 542-547
- and chronic asthma, 541-542
- Respiratory muscle activity, 340-341
- breathlessness and, 240-245
- diaphragm in, 340-341
- intercostals and scalenes in, 341
- Respiratory muscle blood flow, 211-223
- and respiratory muscle fatigue, 219-221
- factors influencing, 211-217
- alterations in arterial pressure, 213
- alterations in respiratory frequency, 216
- alterations in sympathetic tone, 216-217
- anatomic, 212-213
- hypoxia, 214-216
- mechanical, 216
- muscle contractile activity, 213-214
- vasoactive drugs, 217
- future directions for study of, 221-222
- in pathologic conditions, 217-219

- Respiratory muscle capacity, 153-154
- Respiratory muscle dysfunction, clinical evidence of, in COPD, 259-261
- related to surgery, 271-272
- Respiratory muscle endurance, determinants of, 244
- tests of, 244-246
- Respiratory muscle fatigue, 225-236
- and respiratory muscle blood flow, 219-221
- cause of, 225
- clinical implications of, 231-234
- definition of, 225
- differential diagnosis of, 231
- tests for, 246-248
- therapy for, 234
- types of, 225-231
- central, 225-227
- contractile, 229-231
- transmission, 227-228
- Respiratory muscle function, effect of mineral and electrolyte deficiencies on, 331-332
- tests of, 239-251
- undernutrition and, in COPD, 332-334
- Respiratory muscle rest, 154
- Respiratory muscle rest training, 287-299
- effect on sleep, 297
- in bilateral idiopathic diaphragmatic paralysis, 296
- in cardiogenic shock, 297-298
- in COPD, 293-294
- in diseases of chest wall, 294-295
- in Duchenne's muscular dystrophy, 295-296
- in Guillain-Barré syndrome, 296-297
- in hypercapnic ventilatory failure or ventilatory muscle fatigue, 292-297
- in neuromuscular disease, 294-297
- in primary lung disease, 293-294
- negative pressure ventilation in, 287-291
- positive pressure ventilation in, 291-292
- Respiratory muscle strength, and pulmonary function, 243-244
- determinants of, 239-240
- in COPD, 257-258
- measurement techniques of, 240-243
- normal values for respiratory pressures, 243
- Respiratory muscle training, 277-286
- and respiratory muscle fatigue, 233-234
- for endurance, 280-283
- for strength, 280-281
- Respiratory muscles, and dyspnea, 237-248
- effects of malnutrition on, 102-103
- function in health and disease, issue on, 175-248
- functional anatomy of, 175-193
- in acute respiratory failure, 263-266
- in asthma, 261-262
- in COPD, 253-261
- in deformity of thoracic cage, 270-271
- in disease, 253-276
- in interstitial lung disease, 262-263
- in neuromuscular disease, 266-270
- nutrition and, 327-338
- pharmacotherapy of, 301-314
- theophylline and, 315-326
- Respiratory pressures, normal values for, 243
- Respiratory sensation, quality of, 238-239
- Respiratory system, calculating effective compliance and resistance of, 83-87
- elastic recoil of, 12
- equation of motion of, 14
- flow resistance of, 13
- Rhinovirus(es), and asthma, 547
- Rib cage, mechanical structure of, 175-177
- muscles of, 182-188
- Right ventricular afterload, and pulmonary artery impedance, 57-59
- Right ventricular function, anatomic considerations of, 55-56
- effects of mechanical ventilation on, 55-60
- CPPV with PEEP, 59-60
- pulmonary artery impedance, 57-59
- spontaneous and IPPV, 56-57
- Right ventricular preload, 56
- Rocking bed, for IMV, 155
- Salmonella*, in AIDS patients, 381, 452
- Samter's syndrome, 567-576
- clinical features of, 568-571
- associated, 571
- diagnosis of, 571-572
- etiology and pathogenesis of, 571
- natural history of, 568
- patient characteristics of, 568
- prevalence of, 567
- treatment of, 572-573
- Sanitation, in infection control, definition of, 526
- Scalenes, action of, on rib cage, 184-186
- Sclerosis, amyotrophic lateral, function of respiratory muscles in, 270
- Scoliosis, function of respiratory muscles in, 270-271
- Sepsis, respiratory muscle blood flow in, 218
- Shock, hemorrhagic, respiratory muscle blood flow in, 218
- Simian immunodeficiency virus (SIV), and AIDS, 373
- Sinuses, bacteria isolated from, 558
- embryology and anatomy of, 557-558
- Sinusitis, and a nasobronchial reflex, 559
- and asthma, 557-565
- clinical manifestations of, 559
- complications of, 563-564
- definition and epidemiology of, 557
- diagnosis of, 559-560
- etiology and pathogenesis of, relationship to asthma, 558-559
- medical management of, 560-562
- paranasal bacterial, as complication of long-term nasotracheal intubation, 24-25
- right maxillary, 562
- surgical management of, 562-563
- Skeletal muscle, structure of, 279
- training of, 279-280
- Sleep, effect of respiratory muscle rest therapy on, 297
- Smoke, effect of, on ciliary dysmotility and ultrastructural defects, 661
- Speech, in intubated patients, 31-33
- Sputum, examination of, in diagnosis of pulmonary diseases in AIDS patients, 500-501
- Staphylococcus aureus*, in AIDS patients, 457
- Status asthmaticus, and acute exacerbations, anticholinergic agents for, 596
- Sterilization, in infection control, definition of, 526
- methods of, for HIV infection, 527-528
- Sternocleidomastoids, action of, on rib cage, 186-187
- Streptococcus pneumoniae*, in AIDS patients, 450-451
- Succinylcholine, to assist intubation, 26
- Sympathetic tone, alterations in, effect on respiratory muscle blood flow, 216-217
- Sympathomimetic amines, for respiratory muscle therapy, 309
- Terbutaline, for respiratory muscle therapy, 309
- Tetraplegia, function of respiratory muscles in, 267-269



- Theophylline, effect on skeletal muscle contractility, 315-326  
 early history of, 315-316  
 future directions, 324  
 scientific presentations (1981-1987), 316-317  
 for respiratory muscle therapy, 303-309
- Thiopental, to assist intubation, 26
- Thoracic cage, deformity of, function of respiratory muscles in, 270-271
- Tissue oxygen transport, effect of mechanical ventilation on, 7-8
- Toxoplasma gondii*, in CNS infections in AIDS patients, 382
- Tracheal cannulation, surgical methods for, 28-31
- Tracheal intubation, in mechanically ventilated patients, 23-35  
 endotracheal tube cuff management, 31  
 speech in, 31-33
- Tracheobronchial tree, bacterial colonization of, 623-633.  
 See also *Colonization, bacterial, of tracheobronchial tree.*
- Tracheostomy, in weaning of patients from prolonged mechanical ventilation, 123
- Tracheotomy, in mechanically ventilated patients, 28-31  
 weaning from, 33
- Transbronchial biopsy, during mechanical ventilation, 44
- Transdiaphragmatic pressure, techniques to maximize, 241-242
- Translaryngeal intubation, 23-28
- Transmission, nosocomial, of HIV infection. See *Nosocomial transmission, of HIV infection.*
- Triangularis sterni (sternocostalis; transversus thoracic), action of, on rib cage, 187-188
- Trimethoprim-sulfamethoxazole, for chemoprophylaxis in treatment of PCP in AIDS patients, 416-417  
 for treatment of PCP, in AIDS patients, 409-411
- Trimetrexate, for treatment of PCP in AIDS patients, 415
- Trimetrexate-leukovorin, for treatment of PCP in AIDS patients, 415
- Tuberculosis, among health care workers, 522-523  
 and AIDS, 426-435  
 clinical features of, 428-431  
 diagnosis of, 431-433  
 epidemiology of, 426-428  
 treatment of, 433-435  
 in HIV-infected persons, prevention of, 435-436
- Upper respiratory inflammation, in Samter's syndrome, 568
- Ureidopenicillins, for treatment of cystic fibrosis lung disease, 683-684
- Vasculitis, in pediatric AIDS, 512
- Ventilation, alveolar, 16-17  
 applied forces in, 13-14  
 definition of, 11  
 high-frequency (HFV), 48-50. See also *High-frequency ventilation.*
- intermittent mandatory (IMV), 8. See also *Intermittent mandatory ventilation.*
- inverse ratio (IRV), 50-52
- mechanical. See *Mechanical ventilation.*
- weaning from, and respiratory muscle fatigue, 231-232
- mechanics of, during spontaneous breathing, 11-14
- negative pressure, in respiratory muscle rest therapy, 287-291  
 complications of, 290-291  
 opposing forces in, 11-13  
 positive pressure, in respiratory muscle rest therapy, 291-292  
 complications of, 291-292  
 pressure-supported (PSV), 52-53  
 spontaneous, physiology of, 11-17
- Ventilation-perfusion relationship(s), 15
- Ventilator(s), Bear models, 159-160  
 Bennett bellows volume, 6  
 Bennett MA1, 7  
 cuirass, 1  
 Life Products/Lifecare Volume models, 159  
 mechanical, common problems of, 39-40  
 current models of, 9  
 essential and unproven capabilities of, 9  
 future of, 9-10  
 malfunction of, 127-128  
 modern, controversies concerning cycling modes of, 8-9  
 negative pressure, for IMV, 156-158  
 Ohio 560, 7  
 portable positive pressure, 159-160  
 positive pressure, 158-159  
 pressure-cycled, Bennett PR1, 4  
 Bird Mark 7, 4  
 Puritan-Bennett/Thompson models, 159  
 transition in, from pressure-cycled to volume-controlled, 3-4  
 volume-controlled, Emerson, 5
- Ventilatory drive, effects of malnutrition on, 103  
 monitoring of, during mechanical ventilation, 93-95
- Viral genes, function of, 365-368
- Voluntary isocapnic hyperpnea training, 281
- Weaning, from prolonged mechanical ventilation, 116-124  
 failure of, causes of, 117-120  
 strategy and techniques of, 120-123  
 tracheostomy and, 123  
 when to begin, 116-117
- Western blot testing, for detection of HIV infections, 378
- Western red cedar dust, and occupational asthma, 584-585
- Xanthines, for respiratory muscle therapy, 302-309
- Young's syndrome, effect of, on ciliary dysmotility and ultrastructural defects, 663